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TOOTHBRUSH WITH ADJUSTABLE HEAD

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The invention relates to a brush according to the preamble of the independent claim.

Toothbrushes, as used daily, generally present a rigid head, which produces unsatisfactory cleaning effects on the inner side of the jaw, because the brushes clean mostly with the marginal area of the brush head, always in a slanted position on the tooth surface. This disadvantage is corrected by designing shorter tooth heads, which, although they reduce the size of the slanted position, result in cleaning only points of the teeth. As a result, the time required to clean the teeth increases.

From the German Patent No. 660 830 a toothbrush is known with a swivelable holder for the bristles, with a holding means for the bristle holder, which fixes the holder in a position parallel to the handle. To allow the inner side of the teeth to be cleaned, the holder can be swiveled freely, so that it can be adapted to the tooth position. Because the holder itself is flexible in addition, no targeted guiding of the bristle holder during the cleaning of the teeth is possible. The user has too little influence on the effect of the bristles.

The problem of the invention is to provide a toothbrush, on which the bristles can be adjusted in a targeted way as a function of the tooth position, so that, with the same cleaning time, the cleaning effect is increased, and the user always has complete control over the toothbrush.

This problem is solved by a brush according to the characteristic of the independent claim. The dependent claims indicate the characteristics of advantageous variants of the invention.

A toothbrush according to the invention allows, due to its better adaptation to the shape of the jaw and the targeted guidance, a milder and more thorough cleaning of the teeth.

The invention is described in detail below with reference to the drawing.

In the drawing:

Figure 1a shows a head of a toothbrush in a side view,

Figure 1b shows a part of this brush in a top view,

Figures 2a and 2b show cross sections through the handle of the brush,

Figure 2c shows a side view of the handle,

Figures 3a, 3b show an alternative embodiment in a side view and a top view,

Figures 4a-4c show a third embodiment of a brush,

Figures 5a, 5b show an additional embodiment in a perspective view or in a view in the longitudinal direction of the brush,

Figures 5c, 5d show a partial view of the holder with cams in different positions, and

Figures 6a, 6b show an embodiment as in Figures 1 and 2, but with a one-sided holding of the bristle holder, in a schematic view.

In Figure 1a, a holder 14b with bristles 16 is attached in an articulation 26 on a handle 18, which is bent downward, where the holder is connected with a second holder 14a in an articulation 26c. The latter in turn is connected by articulation in the articulation 26d to a lever 20. From the head 12, on the side of the bristles 16, a connection piece 12a leads to the articulation 26d and 26c, respectively. According to Figure 1b, the handle 18 and the slide 20, respectively, grip around the holder 14b and 14a, respectively, from both sides. The slide 20 is guided in the handle 18 in such a way that it can be shifted lengthwise, as is apparent in Figures 2b and 2c. The slide 20 ends in a slide part 20a, which can engage, via a pin 20b, in different engagement positions 30a, 30b, 30c of the handle 18. To adjust the head 12, the slide part 20a is pushed upward in the direction of the arrow at 20b in Figure 2c, after which the handle 18 and the slider 20 can be shifted towards each other, so that the holders 14a, 14b assume a different position with respect to each other.

In contrast to the embodiment according to Figure 1a, in Figures 3a and 3b, each holder 14a and 14b is attached swivelably in the handle 18, namely in the fixed articulation 26c and in an articulation 26d which can be shifted in a oblong hole. The slide part 26a engages, on the one hand, on the articulation 26b, between the holder 14a and 14b, and, on the other hand, in the articulation 26a on the slide 20. Moreover, the functioning of this embodiment is identical to that according to Figures 1a-2c.

According to the embodiment in Figures 4a-4c, the first holder 14b is attached by means of a plug connection 24 to the handle 18, in a manner which does not allow swiveling. The plug part 24b can be engaged in the opposite piece 24a on the handle 18. The bristle head 12 can thus be replaced, as is the case in the other embodiments. A slide 20 is attached (26d) with articulation, as in Figure 1a, on the holder 14a and, on the other hand, it must be set in the engagement positions 30a-30c according to Figures 4b and 4d by means of a snap connection 30. In the above variants, the bristles can be, for example, parallel to each other in the middle engagement position, while in the engagement position 30a the bristles of the holders 14a and 14b form an acute angle.

In the embodiment according to Figure 5a, the holders 14a and 14b are attached freely swivelably in the articulations 26d and 26c; however, they can be set in a fixed position by means of the slide 20, if the latter is shifted in the handle 18 over the holders 14a and 14b. If the brush according to Figure 5a is used, it is advantageous to hold the slide 20 during the cleaning of the inner sides of the teeth in the forward position, and in the retracted position during the cleaning of the external sides of the teeth. The cams 15a and 15b on the holders 14a and 14b have the effect that the latter, as shown in Figure 5d, move in a slanted position while the slide 20 is shifted over, where the slanted position is advantageous for cleaning a concave row of teeth. The articulations 26c and 26d are preferably designed in such a way that the holders assume, without stress, the position drawn in Figure 5a.

According to Figures 6a and 6b, the handle 18 and the slide 20 can be designed so they present one arm on their side facing the tooth head 12. In the case of the use of the brush 10 and the attachment of the replaceable holders 14a, 14b, this has advantages, because the brush consists of fewer individual parts.

The articulations can be formed by the interdigitation of parts that in themselves are separate from each other, or by means of a weak place in a single part that holds together, for example, the articulation 26 in Figure 1a or 6b.

To the extent that it is possible to use to advantage embodiment characteristics, which are not described in detail here, from the German Utility Model Applications G 93 18 148.5 and G 93 19 232.0 in the context of the invention described here, they should be considered an integral component of the disclosure. In particular, mention is made of the adjustment of the holder 14a by means of a rope-like traction means, which, as in the case of the first application, is guided in two strands along the tooth head in such a way that the tooth head 12 remains in a stable position.

The holders can be sufficiently soft so that they can undergo elastic deformation to match the shape of the teeth.

Claims

1. Toothbrush with a handle (18) and, attached to the latter, a head (12) with bristles (16) which sit in holders (14), where at least one holder (14b) is attached swivelably opposite the head (12), and where a holding means (18, 20) is provided, which engages on the holder (14a, b), characterized in that the holding means fixes at least a part of the bristles (16) in a position which is at a slant with respect to the longitudinal extent of the handle (18).

2. Brush according to Claim 1, characterized in that several holders (14a, 14b) are connected to each other by at least one articulation (26a, 26b).

3. Brush according to Claim 1 or 2, characterized in that the holders (14a, 14b) sit in articulation seats (26c, 26d).

4. Brush according to one of the preceding claims, characterized by a holding means in the form of a slide (20), which can be shifted on the handle (18), for the adjustment of a holder (14a, 14b), where the slide (20) engages on an articulation (26d) of a holder (14a, 1b).

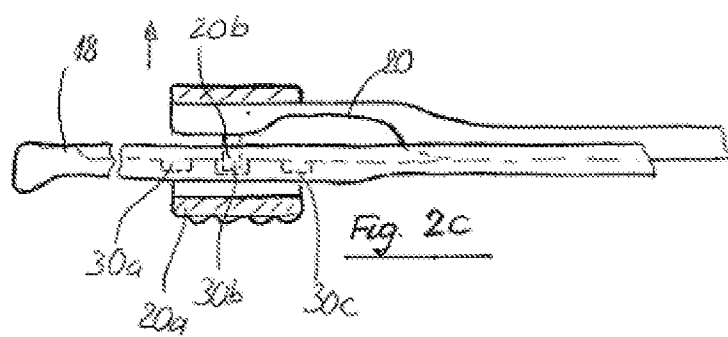
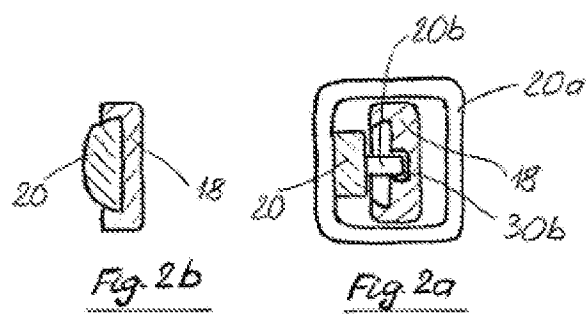
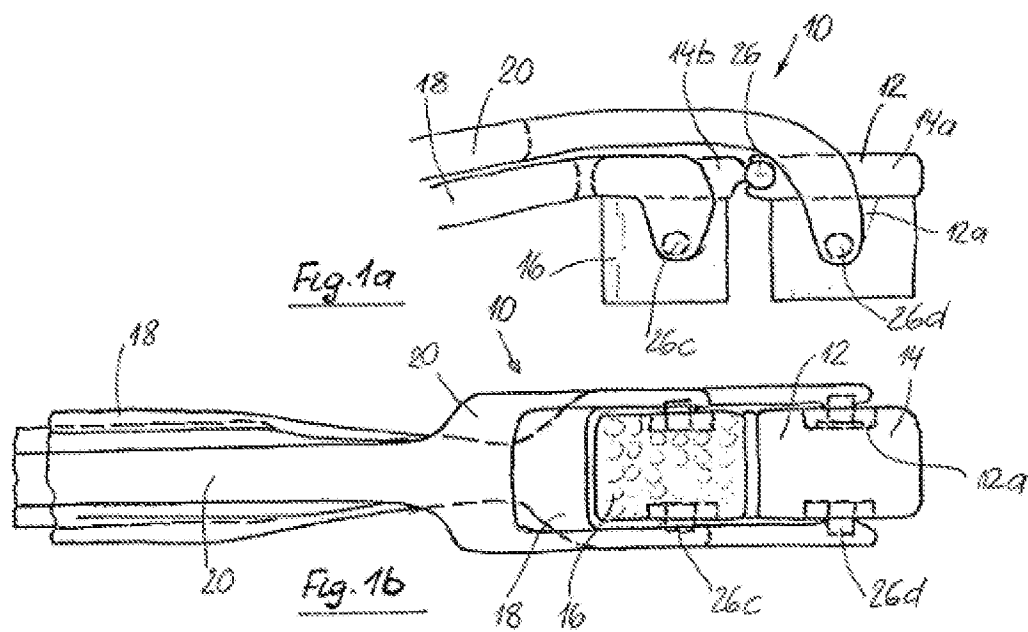
5. Brush according to one of the preceding claims, characterized in that the slide (20) can be latched on the handle (18) in a rest position (30a, 30b).

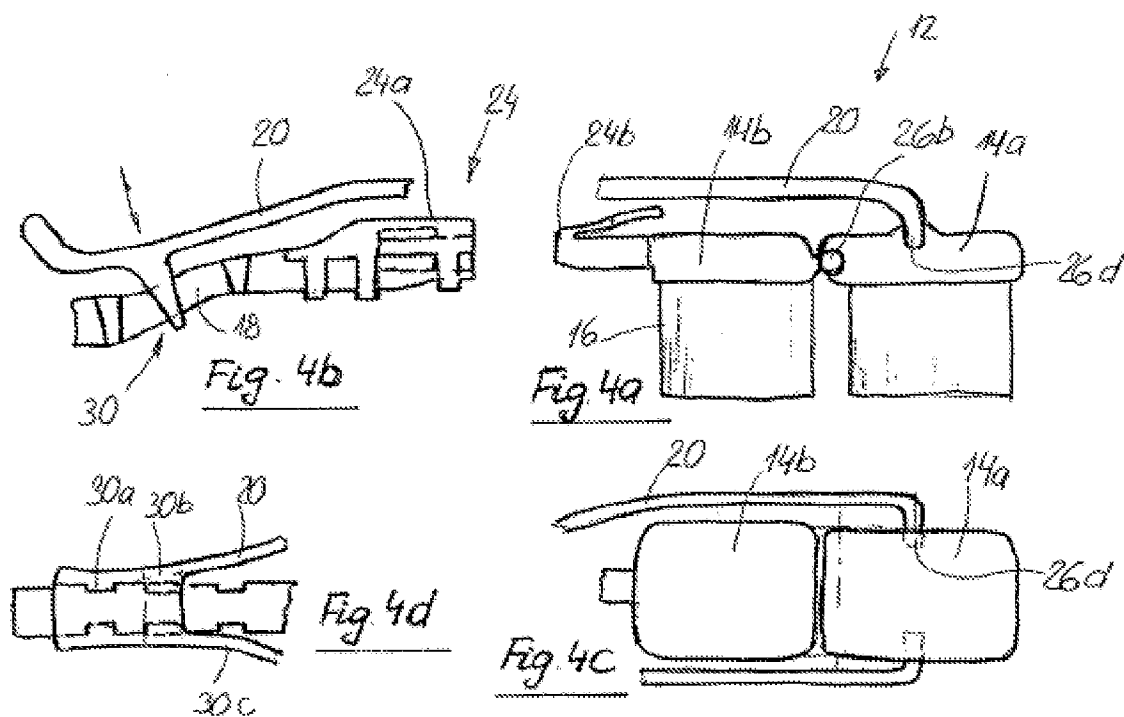
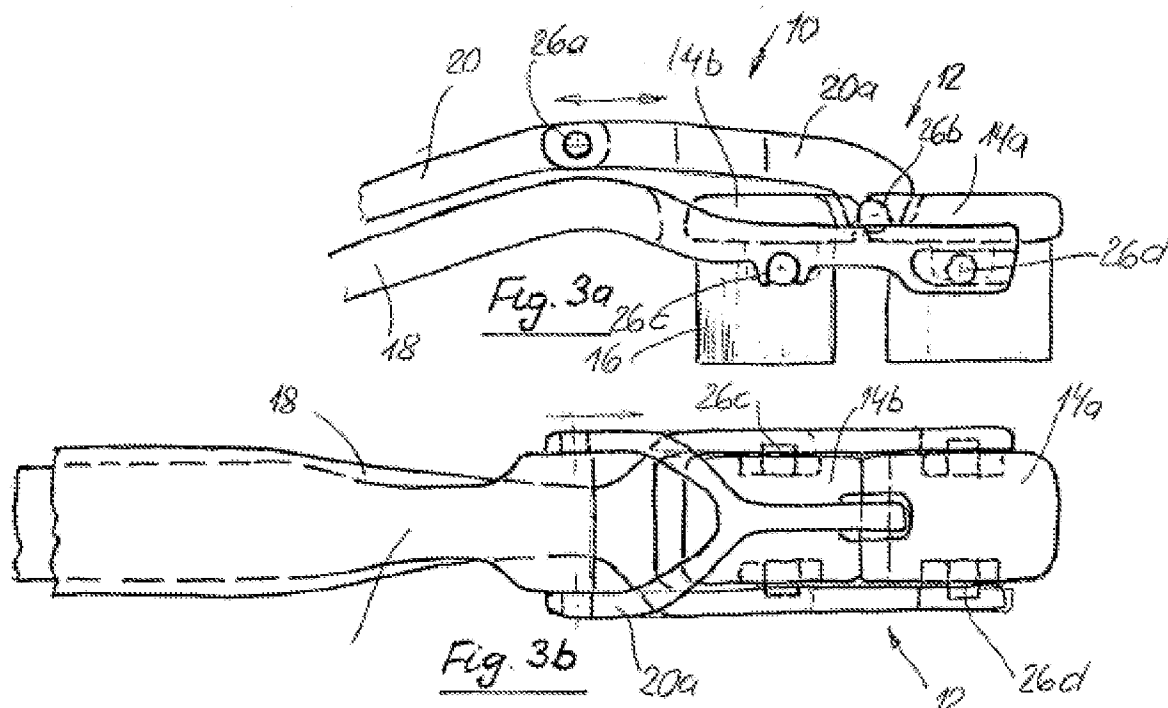
6. Brush according to Claim 5, characterized in that at least two engagement positions (30a, 30b) are present.

7. Brush according to Claim 1 or 2, characterized by an arrangement of the holder (14a, 14b) between the handle (18), on the one hand, and the slide (20), on the other hand, where the holders are attached swivelably both with respect to each other and also with respect to the handle and the slide.

8. Brush according to one of the preceding claims, characterized in that the holders (14a, 14b) are elastically deformable due to the pressure of the teeth during the cleaning.

9. Brush according to one of the preceding claims, characterized in that the slide (20) or the handle (18) is designed so it has one arm.





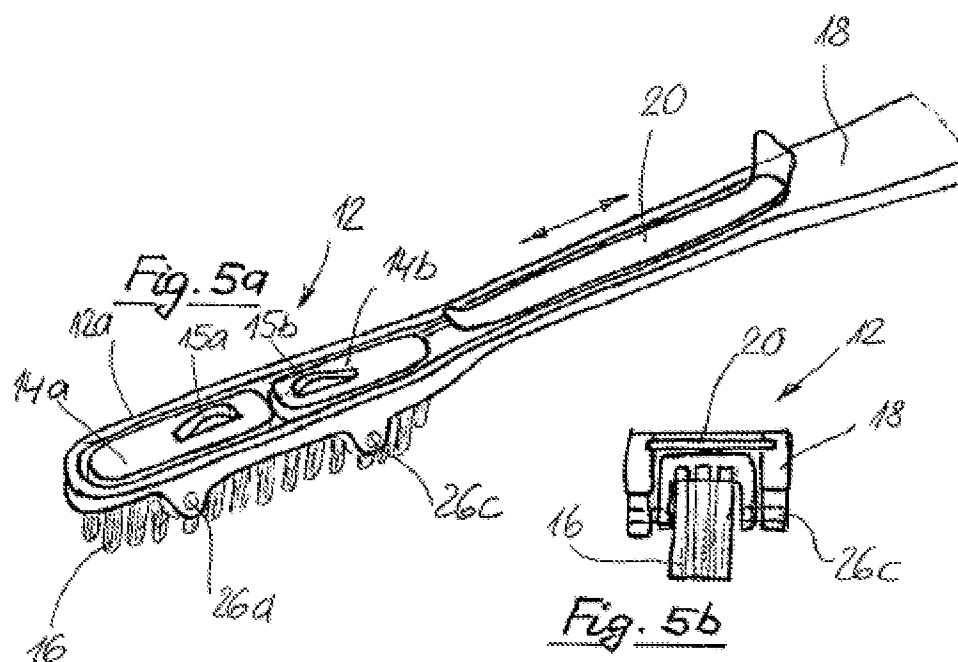


Fig. 5c

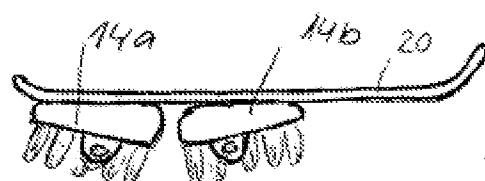


Fig. 5d

